



Focus on the National Air Toxics Assessment (NATA)

From Ecology's Air Quality Program

What is the National Air Toxics Assessment?

The federal Environmental Protection Agency (EPA) recently released its National Air Toxics Assessment (NATA). The purpose of the study is to report EPA's estimates of the nationwide health risks caused by air toxics. The assessment uses data gathered during 1999.

What are "air toxics?"

Toxic air pollutants, or air toxics, are those pollutants known or suspected to cause cancer or other serious health problems. The NATA covers 177 of the federal Clean Air Act's list of 188 air toxics plus diesel particulate matter (diesel particles). For 133 of these air toxics, the assessment includes estimates of cancer and/or non-cancer health effects.

What is the overall cancer risk in Washington created by exposure to air toxics?

The Department of Ecology (Ecology) calculated the cancer risk from exposure to air toxics using risk estimates provided in the NATA for all toxics except diesel particles and formaldehyde. For these two substances, Ecology calculated risk using alternative methods. Results of the calculations show that the additional cancer risk associated with all air toxics is close to 242 per million. That means that in Washington, if people were exposed to these air toxics at 1999 levels throughout their whole lives, there is a possibility that about 1,400 people would contract cancer attributable to air toxics.

Which air toxics are most significant in Washington?

Diesel particles, formaldehyde, benzene and acrolein are the air pollutants that create the greatest air toxics-associated health risks in Washington State.

Diesel particles

Diesel engine emissions posed the greatest risk for air pollution-associated cancer development in Washington. Exposure to diesel particles in Washington increases the risk of developing cancer by 174 chances per million. Ecology estimates that about 68 percent of toxic air pollution-associated cancer risk statewide in 1999 was from diesel particles.

The 1999 NATA (like the 1996 assessment) did not include cancer risk estimates for diesel particles. This is because EPA judged that toxicological data are not yet sufficient to develop a cancer risk assessment. Since there is no EPA diesel cancer risk assessment, Ecology employed the method used by the California Air Resource Board to estimate cancer risk. Ecology's toxicologists believe that exposure to diesel exhaust poses a sufficient public health threat to warrant this preliminary risk assessment.



The risk that diesel particles will harm the heart and lungs is even greater than the risk that they will cause cancer. People who are more sensitive to these pollutants include infants, young children, the elderly, pregnant women, and smokers. Those with pre-existing lung and heart conditions are especially at risk from diesel particles.

Formaldehyde

The NATA found formaldehyde air pollution exposure in Washington is significant. Ecology used a different method than EPA to calculate formaldehyde cancer risk; EPA's method did not consider information in recent studies that shows a greater risk of cancer from formaldehyde exposure. Based on Ecology's calculations, formaldehyde exposure increases cancer risk in Washington by an average of 19 chances per million.

Benzene

The NATA study found that benzene is a significant contributor to air pollution. The average increased cancer risk from benzene exposure in Washington is 12 chances per million. Benzene is emitted into the air mostly from motor vehicles, as well as gasoline service stations, petroleum refining, burning coal and oil, and pulp and paper production.

Acrolein

The air toxic found to create the most significant respiratory problems was acrolein. Acrolein causes respiratory irritation, especially in people with lung conditions like asthma. Twenty of Washington's 39 counties had one or more area with acrolein exposure greater than the level that causes concern. The NATA states that almost two-thirds of acrolein emissions come from burning and one-third comes from diesel and gasoline exhaust.

Which areas in Washington have the highest levels of air toxics?

King and Cowlitz counties ranked in the top one percent of air pollution exposure in the United States. King County's ranking is consistent with most highly urbanized areas in the nation. Cowlitz County's ranking in 1999 was due to the high concentration of industry in that area, including a now-closed aluminum plant.

Clark County ranked in the top two percent of the nation, and Snohomish, Pierce, Kitsap and Asotin counties were in the top five percent. Clark, Snohomish, Pierce and Kitsap counties are urban areas, and Asotin County receives significant pollution from a pulp mill in Lewiston, Idaho.

What is being done to reduce air toxics exposure?

The reduction of toxic air pollution is a high priority for the Ecology's Air Quality Program. Ecology uses sources like the NATA and its own research to determine the most significant air toxics and implement strategies to address the primary areas of concern.

Diesel particles

Ecology is very active in addressing the threat of diesel particles. Through the Washington School Bus Program, Ecology has helped retrofit 3,581 school buses, reducing diesel particulate exposures to children. Ecology is also offering a new grant program designed to provide Washington cities and counties with funding to retrofit their heavy-duty diesel vehicles like diesel garbage, dump, and maintenance trucks and transit buses.

Ecology is helping implement a program to provide electric plug-ins at three truck stops to decrease diesel truck idling. It is developing a program targeting improved maintenance of heavy-duty diesel vehicles. An idling reduction program is available for use at schools.

The West Coast Collaborative is a public-private partnership working to improve public health by reducing air pollution emissions from diesel sources along the West Coast. Members are targeting the highest polluting engines with the most cost-effective control strategies and using federal and local funds to reduce emissions in the most affected communities.

Other Air Toxics

There are several controls in place to reduce public exposure to benzene-containing vapors that would otherwise be released during the refining, storing, and distribution of gasoline. All gasoline tank trucks are equipped to prevent the release of gasoline vapors when they deliver to a gas station. Many gas pumps are equipped with vapor recovery nozzles to capture the vapors while gasoline is being dispensed. In addition, starting with 1998 model year vehicles, federal rules require the phase-in of fueling vapor emissions control systems on new gasoline vehicles. All vehicles will have these systems in place by the 2006 models. The Emission Check Program's testing of vehicles will also detect problems with these on-board refueling vapor recovery systems.

Ecology has devoted significant resources to work with solid waste regulators and local governments on the regional, county, and city levels to provide alternatives to outdoor burning. The Agricultural Burning Practices and Research Task Force continues to fund research designed to develop alternatives to agricultural burning. Ecology is collaborating with other air agencies to design a regional communications strategy to discourage outdoor burning.

Ecology led an effort to convince the Legislature to adopt clean-car standards, which will result in vehicles in Washington emitting fewer air toxics.

Washington has a longstanding tradition of protecting public health by requiring businesses to control air pollution to the best degree possible. Since 1991, the state air toxics rule has required a new business or a manufacturer that modified its operations to meet screening levels for certain chemicals before it can begin construction. Each business must evaluate the possible impact of its emissions to ensure they are protective of human health. The goal of the rule is to prevent problems by reducing emissions as much as possible.

For more information

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